

Abstract

This report identifies trends in land, water, and commercial input use, reports on the condition of natural resources used in the agricultural sector, and describes and assesses public policies that affect conservation and environmental quality in agriculture. Combining data and information, this report examines the complex connections among farming practices, conservation, and the environment, which are increasingly important components in U.S. agriculture and farm policy. The report also examines the economic factors that affect resource use and, when data permit, estimates the costs and benefits (to farmers, consumers, and the government) of meeting conservation and environmental goals. The report takes stock of how natural resources (land and water) and commercial inputs (energy, nutrients, pesticides, and machinery) are used in the agricultural sector; shows how they contribute to environmental quality; and links use and quality to technological change, production practices, and farm programs.

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Preface

This 1996-97 edition of *Agricultural Resources and Environmental Indicators (AREI)* updates information provided in the first edition published in December 1994, and expands coverage to include more detailed data and analysis on resource-conserving production practices. *AREI* takes stock of how natural resources (land and water) and commercial inputs (energy, nutrients, pesticides, and machinery) are used in the agricultural sector; shows how they contribute to environmental quality; and links use and quality to technological change, production management practices, and farm programs. Our objective is to provide a comprehensive source of data and analysis on the factors that affect resource use and quality in American agriculture, and information on the costs and benefits of improving the quality of the Nation's resources.

Because environmental indicators are used for multiple purposes, no single set can serve all needs. Uses of indicators range from identifying specific resource problems at local levels to providing national assessments of broad aggregates to judging the effectiveness of specific conservation and environmental programs. Most indicators are devoid of economic content: they are primarily physical measures. But indicators can also be constructed and used to help identify cost-effective solutions to solving resource-related problems and to help answer questions about whether we are using natural resources efficiently. For example, water quality indicators may point to a reduction in polluting chemicals in a lake or stream, but it is also important to know the costs associated with achieving such reductions and the value of the benefits provided by the cleaner water.

By focusing on the economic dimension of environmental indicators, *AREI* fills a unique niche in the indicators literature. Unlike other indicators reports, *AREI* is not a monitoring report in the sense of establishing an environmental baseline for interspatial or intertemporal comparisons of physical measures of environmental quality. Instead, *AREI* focuses on examining the complex economic links between agricultural activity and environmental performance and on assessing the costs and benefits associated with changes in resource quality.

Like the first edition, *AREI 1996-97* begins with the two major agricultural resources, land and water. We examine both the quantity and quality of land and water, the factors that affect their use, and the value (market and nonmarket) associated with each. The subsequent chapters examine commercial inputs used in agricultural production with a special emphasis on how input use affects the quality of land, water, and wildlife habitat. We then turn to a set of chapters that examines production management practices. Here we focus on describing the factors that affect the adoption of these practices and examine how these practices can use commercial inputs more efficiently and result in less damage to water and land resources. These chapters are followed with an overview of agricultural technology development, which focuses on how new technologies are developed, what public policies encourage development and adoption, and how technological change is an important factor in meeting conservation goals. The final set of chapters is devoted to conservation and environmental programs with a particular emphasis on water quality programs, the Conservation Reserve Program, Conservation Compliance, and wetlands programs. Our goal is not only to describe the programs but to examine the associated costs and benefits to farmers, taxpayers, and consumers.

To facilitate the use of *AREI 1996-97*, we have provided an appendix that describes the agricultural resource surveys and data used throughout the volume, and a subject index. Most chapters also contain a listing of related recent ERS reports. *AREI 1996-97* is also available on the ERS homepage at <http://www.econ.ag.gov> under *Briefing Rooms*.

Agency Acronyms Used in This Report

ACE	U.S. Army Corps of Engineers
CRS	Congressional Research Service
EPA	U.S. Environmental Protection Agency
GAO	U.S. General Accounting Office
OMB	U.S. Office of Management and Budget
USDA	U.S. Department of Agriculture
APHIS	Animal and Plant Health Inspection Service
ARS	Agricultural Research Service
CSREES	Cooperative State Research, Education, and Extension Service
ERS	Economic Research Service
FSA	Farm Service Agency. Consolidates former Agricultural Stabilization and Conservation Service (ASCS), and Farmers Home Administration (FmHA)
FS	Forest Service
NASS	National Agricultural Statistics Service
NRCS	Natural Resources Conservation Service. Formerly Soil Conservation Service (SCS)
OBPA	Office of Budget and Program Analysis
OGC	Office of General Counsel
USDC	U.S. Department of Commerce
ITA	International Trade Administration
USDI	U.S. Department of the Interior
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
FWS	Fish and Wildlife Service
OPA	Office of Policy Analysis
USGS	U.S. Geological Survey

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